UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,631	08/25/2003	Tony Hunter	066671-0044	5328

7590 05/17/2005

David A. Gay
McDERMOTT, WILL & EMERY
7th Floor
4370 La Jolla Village Drive
San Diego, CA 92122

EXAMINER
YAO, LEI

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/648,631	HUNTER ET AL.	
	Examiner	Art Unit	
	Lei Yao, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/25/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *exhibits A, B, C, D, E, and F*.

DETAILED ACTION

The office action is written in the reply filed on 8/25/03.

Claims 1-3 have been cancelled. Claims 4-18 have been added. Claims 4-18 are pending and are examined on the merits.

Specification Objections

The specification is objected to for lacking cross-reference information to parent application.

Priority

> The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

Applicant's claims to an earlier effective filing date through an US application 0855912 ('912), filed on 11/13/1995, are acknowledged. Applicant's claims to an earlier effective filing date through an US application 09/275900 ('900), filed on 03/24/1999, are also acknowledged. Claims 4-18 are drawn to a polypeptide comprising amino acid residues 5-43 or 59-169 of SEQ ID NO: 2, which substantially have protein-protein interaction activity or PPIase activity. Upon review of specification of the applications, it is noted that then neither '900 nor '912 of applications provide adequate written description of the genus of the polypeptide comprising an amino acid 5-43 or 59-163 of SEQ ID NO: 2. The specification merely provides WW domain and PPIase domain, which consist of amino acid sequence 5-43 and 59-163 of SEQ ID NO: 2. Therefore, Claims 4-18 will be given priority to the instant filing date of August 25, 2003.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 7-8, 11-13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4, 8, 12, 13, and 16 are indefinite because it is unclear to what is "substantially the same". The specification provides no definition of "**substantially the same**". Therefore, the metes and bounds of the claims cannot be determined.

Claims 4, 7-8, and 11 are indefinite because it is unclear to what is "**functional fragment**". Instant specification, on page 8, paragraph 3, define that Pin1 polypeptide include functional fragments of the polypeptide, as long as the activity of Pin1 remains. However, such definition does not define the structure of a molecule, and the structure of the claimed "functional fragment", still cannot be determined. Therefore, the metes and bounds of the claims cannot be determined.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As drawn to new matter

Claims 4-18 have been amended to recite a polypeptide having substantially the same an amino acid sequence as amino acid 5-43 or 59-163 of SEQ ID NO: 2. The specification as filed, although identifying the regions of the Pin1 protein comprising the WW domain at residues 5-43 and the PPIase domain at residues 59-163 of SEQ ID NO: 2, does not provide sufficient support for the instant amendment claims reciting amino acid residues which minimally comprise substantially the same an amino acid sequence as amino acid 5-43 and 59-163 of SEQ ID NO: 2 because the term "substantially the same" allows for a variation in sequence from amino acids 5-43 and 59-163 and because the claims encompass sequences which vary considerably from SEQ ID NO:2.

As drawn to written description

Claim 4, 6-8, 10-14, 16-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

Claims 4, 7-8, and 11 recite functional fragment thereof", which read on any functional equivalent of polypeptide of SEQ ID NO: 2 (Pin1), amino acid residue 5-43 (fragment 5-43) or 59-163 of SEQ ID NO: 2 (fragment 59-163), which have protein-protein interaction activity or PPIase activity. Claims 4, 8, 12, 13, and 16 recite "sequence substantially the same", which read on any amino acid substitutions, deletions, insertions, or fragments of SEQ ID NO: 2. Claims 6, 10, 14, and 17 recite "conservative variation", which

read on any amino acid substitution of SEQ ID NO: 2. However, the claims do not limit any particular conserved structural attributes because no metes and bounds can be determined for the terms "functional fragment", "sequence substantially the same", or "conservative variation" The specification merely discloses fragments of Pin1, amino acid sequence 5-43, and amino acid sequence 59-163. No other variants, fragments, or any functional equivalent thereof meeting the limitation of the claims is ever identified or particularly described. The specification provides a definition of "conservative variation" as the replacement of an amino acid residue by another, biologically similar residue. However, the instant claims encompass polypeptides structural dissimilarity as compared to Pin1, fragment 5-43, and fragment 59-163. Therefore, Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1 does not anticipate the claimed genus because the genus includes molecules which differ widely in structural attributes from Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1. Thus, one skill in the art can not envision the detailed chemical structure of the encompassed "functional fragment", "sequence substantially the same", or "conservative variation".

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claims is the polypeptide of Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1 or "replacement of an amino acid residue by another, biologically similar residue", or "as long as the function of protein-protein interaction activity remains". No identification of any particular portion of the structure as Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1 is conserved in the claimed genus. The instant specification does not provide a specific or detail structural characteristics of the derivatives of Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1. It is known in the art that not any derivatives of Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1 can be used as Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1 to generate same functional and biological characteristic Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1 Accordingly, in the

absence of sufficient recitation of distinguishing structural and functional characteristics, the specification does not provide adequate written description of the claimed genus. Therefore, the written description is not commensurate in scope with the claims, which read on functional fragment", "sequence substantially the same", or "conservative variation". One of skill in the art would reasonably conclude that applicant was not in possession of the claimed genus.

Claims 12-18 also recite "antigenic fragment thereof", which read on proteins, which minimally comprise any amino acid sequence having antigenic activity. The requirements for "antigenic activity" are that said fragments, within the context of any protein, are bound by an antibody. However, any protein can be bound by antibody which was raised to said protein and However, the claims do not limit any particular conserved structural attributes to the protein which minimally comprises the putative "antigenic fragment, because no metes and bounds can be determined for the terms "antigenic fragment". The specification merely discloses Pin1, fragment 5-43 of Pin1, or fragment 59-163 of Pin1. No other variants or fragments or any functional equivalent thereof meeting the limitation of the claims is ever identified or particularly described. The specification provides no definition of any conserved sequence or fragment of SEQ ID NO: 2 as "antigenic fragment". Antigen is defined as any substance that may be specifically bound by antibody molecule. It is known in the art that almost every kind of biologic molecule including protein can serve as antigen or called "antigenic fragment" to generate antigenic activity to produce antibodies, in the same or different species, as evidenced by Abbas et al., (Cellular and molecular immunology, page 50-51, 1991). The instant specification does not provide specific fragments or conserved sequence of SEQ ID NO: 2 as "an antigenic fragment". Accordingly, in the absence of sufficient recitation of distinguishing structural and functional characteristics, the specification does not provide adequate written description of the claimed genus. Therefore, the written description is not commensurate in scope with the claims, which read on "an antigenic fragment". One of skill in the art would reasonably conclude that applicant was not in possession of the claimed genus.

Although drawn to DNA arts, the findings in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) and Enzo Biochem, Inc. V. Gen-Probe Inc. are relevant to the instant claims. The Federal Circuit addressed the application of the written description requirement to

DNA-related inventions in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). The court stated that "[a] written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Id. At 1567, 43 USPQ2d at 1405. The court also stated that a generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA" without more, is not an adequate written description of the genus because it does not distinguish the genus from others, except by function. It does not specifically define any of the genes that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is.

Id. At 1568, 43 USPQ2d at 1406. The court concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id.

Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Therefore, only the polypeptide of SEQ ID NO: 2 (Pin1), amino acid residue 5-43 (fragment 5-43) and 59-163 of SEQ ID NO: 2 (fragment 59-163), but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the

written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 4-18 are rejected under U.S.C. 102(b) as being anticipated by Hunter et al., (US Patent 5952467) or Lu et al., (Nature, vol 280, page 544-7, 1996).

Claims 4-7 are directed to a substantially pure Pin1 polypeptide comprising amino acid sequence substantially the same as amino acid residues 5-43 of SEQ ID NO: 2, functional fragment, conservative variation and having protein-protein interaction activity, comprising NIMA association activity. Claim 8-11 are directed to a substantially pure Pin1 polypeptide comprising amino acid sequence substantially the same as amino acid residues 59-163 of SEQ ID NO: 2, functional fragment, conservative variation and having protein-protein interaction activity, comprising PPIase activity. Claims 12-18 are directed to a substantially pure Pin1 polypeptide comprising amino acid sequence substantially the same as amino acid residues 5-43 or 59-163 of SEQ ID NO: 2 and conservation variation and antigenic fragments, and having antigenic activity to Pin 1 antibody.

Hunter et al., disclose a polypeptide, Pin1 (SEQ ID NO: 2), which is 100% identical to the amino acid sequence 5-43 and 59-163 of SEQ ID NO: 2 as evidenced by sequence search (see attachment, Exhibit A). Hunter et al., disclose the polypeptide, Pin1, containing a conserved N-terminal domain (WW domain), which has protein-protein interaction activity comprising NIMA association activity. Hunter et al., also disclose that the Pin1 protein has C-terminal Peptidyl-Propylcis/trans Isomerase (PPIase) activity (column 2, line 44-50, figure, 2A). Hunter et al., further disclose the N- or C- terminal polypeptides of Pin1

are antigenic fragment, which are used to immunize animals to produce antibodies that specifically bind to N- or C-terminal domain of Pin1 (column 9, line 47-65).

Lu et al., disclose a human polypeptide, Pin1, (page 545), which is 100% identical to the amino acid sequence 5-43 and 59-163 of SEQ ID NO: 2 as evidenced by sequence search (see attachment, Exhibit F). Lu et al., also disclose that the polypeptide interacts with NIMA and has PPIase activity (page, 547, column 1, paragraph 1).

It has been indicated in claim rejections of second paragraph of 35 U.S.C. 112, that it is not clear to the metes and bounds of the claims for "sequence substantially the same" or "functional fragment". Therefore, the N- or C- terminal polypeptide of Pin1 meets the limitation of claimed terms, as written.

2. Claims 4-7 are rejected under U.S.C. 102(b) as being anticipated by Lu et al., (WO00/48621, 2000).

Claims 4-7 are set forth above.

Lu et al., disclose a polypeptide containing 39 amino acids (figure 6), which is 100% identical to the amino acid sequence 5-43 of SEQ ID NO: 2 as evidenced by sequence search (Exhibit B). Lu et al., disclose that the polypeptide has a protein-protein interaction activity, polypeptide-phosphorylated ligand interaction activity, and is involved in cell growth regulation (page 2, paragraph 2-3).

3. Claims 8-11 are rejected under U.S.C. 102(b) as being anticipated by Fujimori,et al., (Biochem Biophys Res Commun, Vol 265, page 658-663, 1999).

Claims 8-11 are set forth above.

Fujimori et al., disclose a polypeptide, mouse Pin1, which is 98.3% identical to the amino acid sequence 59-163 of SEQ ID NO: 2 (page 659, figure 1) as evidenced by sequence search (see attachment, exhibit C). Fujimori et al., further disclose the polypeptide has PPIase activity and play an important role in cell proliferation and mitosis progression in mammalian cells (page 658, abstract and page 662, figure 4).

4. Claims 12-15 are rejected under U.S.C. 102(b) as being anticipated by Tang et al., (WO01/79449).

Claims 12-15 are set forth above.

Tang et al., disclose a secreted polypeptide (page 548-549), which is 81% identical to amino acid 5-43 of SEQ ID NO: 2 as evidenced by sequence search (Exhibit D). Tang et al., disclose that the polypeptide can be used to generate an antibody that specifically binds the polypeptide. Such antibodies, particularly monoclonal antibodies, are useful for detecting or quantitating the polypeptide in tissue (page 4, line 24-24-8). The sequence alignment shown in Exhibit E indicates that the polypeptide disclosed by Drmanac et al., contains a partial amino acid sequence, which is 100% identical to the amino acid 5-43 of SEQ ID NO: 2, Pin1. Therefore, the polypeptide would have inherently antigenic activity to Pin1 antibody.

5. Claims 16-18 are rejected under U.S.C. 102(b) as being anticipated by Drmanac et al., (WO/0175067).

Claims 16-18 are set forth above.

Drmanac et al., disclose a polypeptide (SEQ ID NO: 42931), which is 84% identical to the amino acid 59-163 of SEQ ID NO: 2 as evidenced by sequence search (Exhibit E). Drmanac et al., disclose that the polypeptide has antigenic activity and can be used to generate an antibody that specifically binds the polypeptide (page 4, line 24-28). The sequence alignment shown in Exhibit E indicates that the polypeptide disclosed by Drmanac et al., contains a partial amino acid sequence, which is 100% identical to the amino acid 59-163 of SEQ ID NO: 2, Pin1. Therefore, the polypeptide would have inherently antigenic activity to Pin1 antibody.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by

multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

An obviousness-type double-patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g. In reBerg, 140 F.3d, 1428, 46 USPQ2d 1226 (Fed. Cir. 1998): In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993): In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985).

Claims 4, 5, 7-9, 11-13, 15, 16 and 18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 5952467. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 2 of U.S. Patent No. 5952467 anticipate the instant claims 4, 5, 7-9, 11-13, 15, 16 and 18.

Claims 4, 5, 7-9, 11-13, 15, 16 and 18 are set forth above.

Claim 1 of U.S. Patent No. 5952467 teaches a substantially pure Pin1 protein comprising SEQ ID NO: 2 which meets the specific embodiments of all the instant claims

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lei Yao, Ph.D. whose telephone number is 571-272-3112. The examiner can normally be reached on 8am-4.30pm Monday to Friday.

Any inquiry of a general nature, matching or file papers or relating to the status of this application or proceeding should be directed to Kim Dowining for Art Unit 1642 whose telephone number is 571-272-0521

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lei Yao, Ph.D.
Examiner
Art Unit 1642

LY

KAREN A. CANELLA PH.D
PRIMARY EXAMINER